

WASTE MATTERS

HWM

A BULLETIN OF THE HAZARDOUS WASTE MANAGEMENT DIVISION VOLUME IV, NO. 3 NOVEMBER 1995

WASTES GENERATED AT LLNL

*Daniel Hoyt, HWM Documents and Assessments**Donna Maloy, HWM Database and Systems Management*

Over the course of each year, the Hazardous Waste Management Division receives a wide variety of types and quantities of waste resulting from LLNL research programs. Division staff must determine whether these wastes are to be stored, treated, packaged, prepared for transport to another on-site location, or sent for disposal off site. Waste disposition depends on waste type.

LLNL deals with four broad categories of waste types: hazardous (HW), low-level (LLW), mixed (MW), and transuranic (TRU). Each type is defined by the strict regulations that govern its handling and disposition.

Hazardous waste characteristics are identified in EPA regulation 40 CFR 261 and California regulation CCR 22-66261. These characteristics include ignitability, corrosivity, reactivity, and TCLP toxicity. Because of its quantity, concentration, or physical and chemical characteristics, a single hazardous waste or a combination of these wastes, if not properly managed, could pose a substantial present or potential hazard to human health and the environment.

Hazardous wastes at LLNL may consist of lab packing materials, inorganic and organic solids and liquids, sludges, soils, lab trash, gases, solvents, metal-

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MEET HECTOR PEDEMONTE, HWM'S FIELD CHEMIST

Kay Tracy, HWM Environmental Chemistry Group

Since June of this year, Hector Pedemonte has been working as an HWM field chemist. He plays an important role in determining the handling and disposition of the hazardous waste generated on site. *Waste Matters* thought it would be interesting to learn a little more about Hector and the activities of an HWM field chemist.

What is your background?

I have a B.S. in Chemistry and an M.S. in Polymers (Plastics).

I started working in the hazardous waste field in

1989 with a firm in Santa Clara. In May 1991 I joined International Technology of San Jose; the company sent me to LLNL as a contractor in June 1991. I started out at the Lab by working in the lab pack area in Building 612. This allowed me to get a lot of experience in a relatively short time.



In October 1992, I was hired as a full-time employee by the Lab. I was assigned to the Building 514 Waste Water Treatment Unit, and then to Field Services. In January 1994, I was given yet another assignment, this time to the HWM Chemist Review Office, where I reviewed hazardous, radioactive, and mixed waste requisitions. In June 1995, I was made an HWM field chemist.

Some waste generators and EPD employees may know me from the classes that I gave during the month of September on the new Waste Disposal Requisition (WDR) form.

What does an HWM field chemist do?

My function at this time is to help Hazardous Waste field technicians to fill out unusual or particularly difficult WDRs. I help to provide specific information, which is used to determine the ultimate disposition of the waste. This information, such as the disposal codes, is not available from the Material Safety Data Sheet which is attached to the requisition. Accurate and complete information is difficult to achieve.

Once the requisition has been checked, verified, and if need be, characterized by a review chemist, the results of the characterization determine whether a waste is stored, shipped off site, treated, or transported

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LLNL Wastes

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contaminated debris, and other contaminated material generated from LLNL programs.

These wastes are temporarily stored by the generators in Satellite Accumulation Areas or Waste Accumulation Areas before being transferred to Hazardous Waste Management facilities that store, treat, or transport them to an approved off-site treatment and disposal facility.

The quantities of hazardous wastes generated for a six-month period are shown in Figure 1. The large quantity of hazardous wastes received by HWM in June 1995 was generated from on-site soil remediation work.

Low-level waste is defined by DOE Order 5820.2A. It is described as being distinctly different from high-level waste, TRU waste (low-level waste has TRU nuclide concentrations less than 100 nanocuries per gram), or spent nuclear fuel uranium mill tailings.

Low-level waste may consist of trash, radioactive-contaminated construction debris, laboratory glassware, paper, soil, equipment, and other contaminated material from research and development programs. The quantity of low-level waste handled by HWM for a six-month period is shown in Figure 2.

Mixed waste is defined by the Atomic Energy Act and the Resource Conservation and Recovery Act as containing both radioactive and hazardous components. The Federal Facility Compliance Act defines it as "waste that contains both hazardous waste and source, special nuclear, or byproduct material subject to the AEC [Atomic Energy Commission] of 1954."

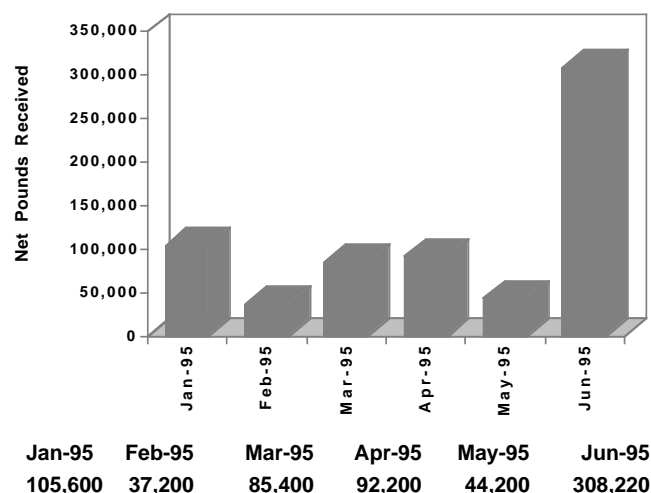


Figure 1. Hazardous waste received by HWM

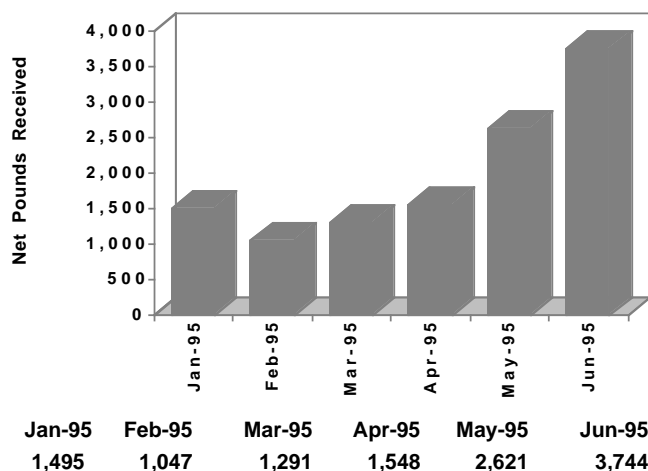


Figure 2. Low-level waste received by HWM

Typical mixed waste at LLNL may consist of radioactively contaminated sludges, soils, laboratory debris, construction material, inorganic and organic liquids and solids, and other material disposed of by LLNL programs. Most liquid mixed wastes currently are treated and all mixed waste is stored at HWM facilities until an approved disposal site is made available. Mixed waste generated for a six-month period is provided in Figure 3.

Transuranic waste is radioactive material contaminated with alpha-emitting transuranium nuclides with atomic numbers greater than 92, with half-lives longer than 20 years, and are found in concentrations greater

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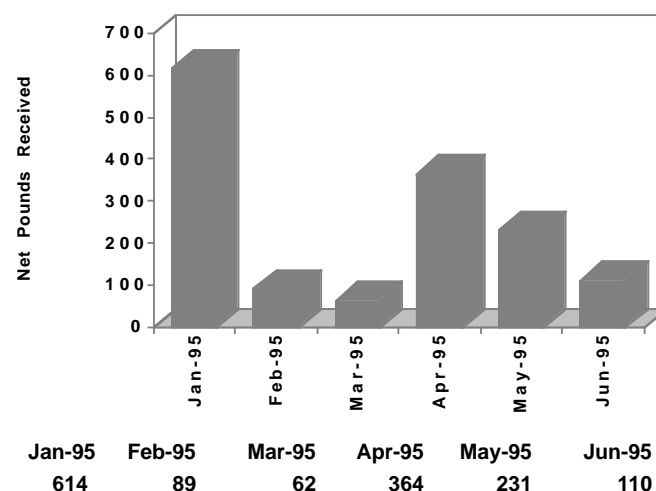


Figure 3. Mixed waste received by HWM

LLNL Wastes

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than 100 nanocuries per gram of waste. By volume, approximately 95% of LLNL's TRU waste is contaminated with plutonium isotopes. LLNL generates about 2 tons of TRU waste per year, all originating from the plutonium facility (Building 332) and the heavy element facility (Building 251). TRU wastes are stored at HWM until they may be disposed of at DOE's Waste Isolation Pilot Plant.

For calendar year 1994, LLNL generated waste volumes shown in the pie chart below (Figure 4).

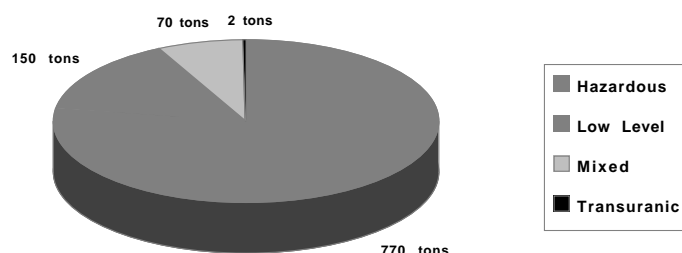


Figure 4. LLNL waste volume, 1994

DO YOU HAVE AEROSOL CANS FOR DISPOSAL?

When disposing of aerosol cans, please remember:

- Aerosol cans should be packaged separately from other wastes.
- Nozzles should not be removed unless designed for removal.
- The plastic protector cap, if available, should be put back on the can.
- Waste aerosol cans could explode, so they should be packed in small quantities in containers that are 5 gallons or less, and not in 55-gallon drums.



Micro-Dusters and other similar types of aerosol cans with completely removable nozzles are generally considered nonhazardous if empty. The Micro-Duster nozzle, when removed, leaves a hole that shows whether the can is fully discharged. If so, it may be disposed of as nonhazardous waste in accordance with empty container regulations.

Hector Pedemonte, HWM Field Chemist

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to another location on site. The waste stream information and characterization information must be presented in a format acceptable to the Total Waste Management System (TWMS) database, i.e., it must use units and interdependency codes acceptable to the database. To ensure that this happens, I often have to interface with waste generators, HWM personnel, environmental analysts, and Chemical Environmental Services (formerly known as Environmental Analytical Services). If you are in one of the above groups, sooner or later you may either receive a phone call or a visit from me, to ask for some information about a waste or a waste disposal requirement. You may do the same to me if you have any question about the new requisition form or the waste you generate. I can be contacted at extension 3-6059 or pager 03720, or I can be found in T6127, room 1002. If I can't answer all your waste disposal questions, I will find somebody who can.

Sometimes you might find me out in the field, in the midst of a lab clean-out involving a large amount of chemicals. I also respond to special services requests (SSRs), such as checking the integrity of containers of peroxides that are being disposed of.

Finally, other duties of mine include reviewing requisitions for acceptance in the Building 612 yard, and applying all required federal, state, and LLNL codes for each requisition.

TRAINING CALENDAR

EP0006

Hazardous Waste Generation and Certification

November 1	8:15–12:00
November 2	1:15–4:30
November 16	8:15–12:00
November 29	8:15–12:00

EP0021

TRU Waste Generation and Certification

November 9	8:15–12:00
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EP0053

Waste Accumulation Area Operations

November 10	8:00–11:00
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EP0110

Low-Level Waste Generation and Certification

December 11	8:30–11:30
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For additional information, contact Linda Lucchetti at 2-9236.



Note: This is an update of an article originally appearing in the September 1993 issue.

MANAGING WASTE TO THE WAA WHEN A LAB'S RMMA/NONRMMA STATUS CHANGES

Brad Thomson, Chemistry and Material Science

When a lab or room changes status from a Radioactive Materials Management Area (RMMA) to nonRMMA status or vice versa, HWM requires you to package and remove any hazardous or radioactive waste generated up to that time. When the change occurs, close the waste container, fill out a Waste Disposal Requisition (WDR), and take the waste to the Waste Accumulation Area (WAA). This procedure is necessary to reduce the possibility of an error in identifying waste potentially contaminated by radioactivity and also to reduce the amount of waste that must be evaluated for radioactivity.

If the room was an RMMA at any time during waste generation, questions 33–35 on the Hazardous Waste Disposal Requisition must be answered:

33. Was the waste kept isolated from any operation that could have produced radioactive contamination (using a glove box, vent hood, etc.)? (If no, full rad analysis required)

34. Was the waste exposed to particle beams capable of inducing radioactivity by activation? (If yes, full rad analysis required)

35. Describe other controls used to prevent radioactive contamination.

By following this simple policy, you can prevent unnecessary analyses and confusion over waste status.

Please contact your environmental analyst or HWM technician for more information and assistance.

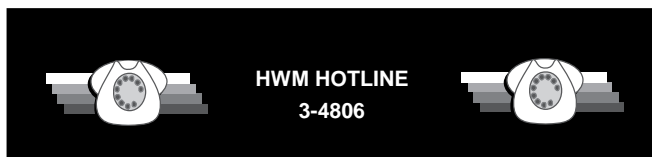
WHEN FILLING OUT THE WDR

Charlie Patterson, Waste Operations section leader, reminds all those using WDRs to observe the following:

- Don't use chemical structures or formulas in the waste description.
- When making a correction on the form, use just a single line to cross out the old information, then initial and date it.



**Environmental Protection Department
Hazardous Waste Management Division, L-620
Lawrence Livermore National Laboratory**



WASTE MATTERS is published by HWM to inform generators of the latest regulations in waste handling and management.

To receive this bulletin, call 2-6761. The publishing staff welcomes any questions, suggestions, or ideas for articles; please contact the technical editors listed below.

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